

## CRISIS BULLETIN

High prevalence of acute  
malnutrition in urban slums

Indonesia has come a long way since the start of the economic crisis. With reforms underway, analysts expect economic recovery to come in the next 3-5 years. However, the crisis has had a significant impact on the health and nutrition of the population, such as the high prevalence of acute malnutrition found in urban slums in Indonesia's largest cities in the first half of 1999 reported in this Bulletin. Although the country is beginning to recover from the crisis, such problems will not disappear overnight and still require unfailing attention.

In the first half of 1999, the proportion of children aged 12-23 months with a too low bodyweight in comparison to their height, was between 20-30% in the urban slums of Jakarta, Surabaya and Ujung Pandang. Such high levels of acute malnutrition, or *wasting*, are usually only detected under emergency or disaster conditions,<sup>1</sup> and indicate that there is a very serious lack of food at the household level.

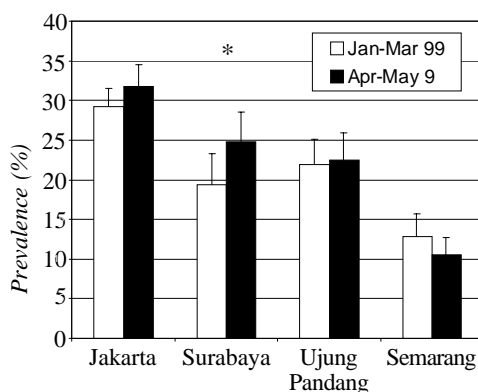
In order to assess the impact of Indonesia's economic crisis on nutrition and health, the HKI/GOI-MOH Nutrition Surveillance System collects data among 30,000-40,000 households in a variety of urban and rural areas of Indonesia 3-4

times per year. In Jan-Mar '99 and Apr-May '99, data were collected on children younger than five years and their mothers in four urban slum areas (Jakarta, Surabaya, Ujung Pandang and Semarang) and four rural areas (West Java, Central Java, East Java and Lombok).

Figures 1 and 2 show the prevalence of wasting (too low weight-for-height, WH) among children aged 12 – 23 mo old in urban slum areas and in rural areas, respectively. In Jakarta, Surabaya and Ujung Pandang 20-30% of the children was wasted. In rural Java, Lombok and Semarang 8-17% of the children was wasted. While the proportion that was

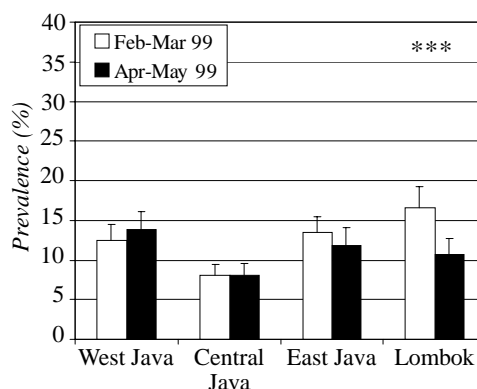
(Cont'd on p2, col. 1)

**Figure 1. Prevalence of wasting (Z-score for WH <-2 SD) among urban children aged 12-23 mo old in Jan-Mar 1999 and Apr-May 1999.** Bars indicate 95% Confidence Interval (CI) inflated for design effect.



\*Significant difference between rounds in an area,  $p < 0.05$ , Chi-square test corrected for design effect.

**Figure 2. Prevalence of wasting (Z-score for WH <-2 SD) among rural children aged 12-23 mo old in Feb-Mar 1999 and Apr-May 1999.** Bars indicate 95% CI inflated for design effect.



\*\*\* Significant difference between rounds in an area,  $p < 0.001$ , Chi-square test corrected for design effect.

## Interpreting wasting among children and mothers

Wasting, or too low weight-for-height, is a sign of an acute shortage of food. In the reference population, 2.3% of the children fall within this category ( $<-2$  SD). And, of the 52 studies conducted in developing countries between 1974-1993 of which the prevalence of wasting is reported in the reference book on anthropometry published by WHO<sup>1</sup>, only three studies found a prevalence higher than 20%. One study, conducted in Sri Lanka, found 21.5%, while the other two studies were conducted under emergency or disaster conditions and found 37.1% (Somalia) and 71.9% (Southern Sudan). Consequences of such a poor food intake, which results in wasting, include growth faltering, reduced resistance to infection and hence higher morbidity and mortality, and failure to thrive which, when sustained for a relatively long period of time, may affect a child's mental development.

Among adults, wasting is defined as a body mass index (calculated as  $\text{weight/height}^2$ )  $< 18.5 \text{ kg/m}^2$ . A prevalence of wasting of 10-19% indicates a poor food security situation and 20-39% a serious situation. Consequences of a low BMI among mothers include<sup>1</sup>:

- Reduced work capacity, which reduces income and has a negative impact on the economy
- Increased morbidity and mortality due to reduced resistance to infection
- Less energy available for other activities, particularly housework, care and leisure activities
- Greater risk of pregnancy complications such as reduced intrauterine growth
- Reduced quality of breastmilk

For more elaborate information about wasting among mothers see HKI/GOI Crisis Bulletin, Issue 4, October 1998.

(Cont'd from p1, col. 2)

wasted was more or less stable in the rural areas, there was a significant increase in Surabaya and a trend for an increase in Jakarta.

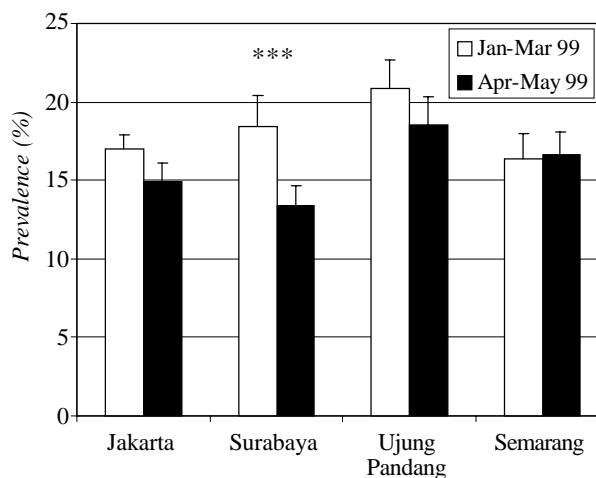
### ACUTE MALNUTRITION AMONG MOTHERS

The prevalence of wasting among (non-pregnant) mothers, as indicated by a body mass index (BMI)  $< 18.5 \text{ kg/m}^2$ , was between 13-21% with little difference between mothers in urban and rural areas (figures 3 and 4). A prevalence of a BMI  $< 18.5 \text{ kg/m}^2$  of 10-20% indicates a poor food security situation.<sup>1</sup>

### YOUNG CHILDREN'S DIETS

While it has previously been reported (see HKI/GOI Crisis Bulletins, Issues 2 and 3, October 1998) that

**Figure 3. Prevalence of wasting (BMI  $< 18.5 \text{ kg/m}^2$ ) among non-pregnant urban mothers in Jan-Mar 1999 and Apr-May 1999.** Bars indicate 95% CI inflated for design effect.



\*\*\* Significant difference between rounds in an area,  $p < 0.001$ , Chi-square test corrected for design effect.

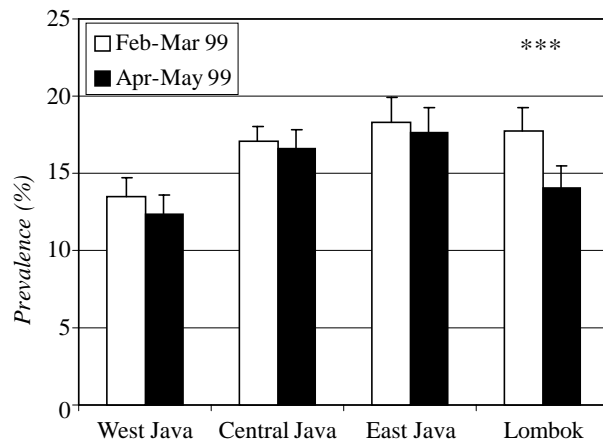
one of the consequences of Indonesia's economic crisis is an enormous increase in the prevalence and severity of micronutrient deficiencies, the very high prevalence of wasting reported above indicates that not only the quality of young children's diets but also its quantity is very poor. There may be two direct causes for the low food intake: an absolute lack of food at household level as well as a low frequency of feeding due to a lack of time available for caring practices.

The fact that, among mothers, a slight decrease in the prevalence of wasting was observed between Jan-Mar and Apr-May 1999 (figures 3 and 4) may indicate that mothers' access to food improved slightly. The fact that, among children, no such decrease of wasting was observed indicates that, among children, acute malnutrition is not only related to the availability of food, but also to caring practices. While, according to the finding among mothers, the crisis-induced lack of food at household level seems to have stabilized or even already improved slightly, the absence of a decrease of wasting among children seems to indicate that the extended working hours, which are necessary to boost household income, reduce the time that is available for caring for children and hence limits the number of meals that can be prepared and fed to young children.

### STUNTING AND UNDERWEIGHT

Contrary to the prevalence of wasting, the prevalence of stunting (too low height for age) among children was lowest in Jakarta, Surabaya and West-Java (30-36%) and highest in Lombok and Ujung Pandang (46-57%) (data not shown). Stunting indicates that

**Figure 4. Prevalence of wasting (BMI <18.5 kg/m<sup>2</sup>) among non-pregnant rural mothers in Feb-Mar 1999 and Apr-May 1999. Bars indicate 95% CI inflated for design effect.**



\*\*\* Significant difference between rounds in an area,  $p < 0.001$ , Chi-square test corrected for design effect.

during a longer period particularly the quality of the diet has been poor. A prevalence of stunting between 30-39% is classified as high and of 40% or more as very high.<sup>1</sup> The fact that the prevalence of stunting was lowest in the two largest cities and highest in the outer areas indicates that on a longer term, quality of food has been better in urban areas on Java than in urban and rural areas of the outer islands. The prevalence of wasting found indicates that the urban areas are more affected by an acute shortage of food than the rural areas.

Underweight, or too low weight-for-age (WA), can be the results of both wasting (sudden low weight) as well as stunting (low weight because of short stature). The prevalence of underweight was found to be very high (30-60%) in all areas. The areas that were worst off (>40%) include Ujung Pandang, Lombok, Jakarta and Surabaya. In all areas, the prevalence was slightly, but not significantly, higher in Apr-May 1999 as compared to Jan-Mar 1999.

## CONCLUSION

The shortage of food at household level caused by the crisis was found to be most severe in urban areas. This has resulted in an alarmingly high prevalence of wasting (20-30%) among children in Jakarta, Surabaya and Ujung Pandang. While among mothers, the prevalence of wasting seemed to have decreased slightly, the prevalence of underweight among children seemed to still increase very slowly.

<sup>1</sup> World Health Organization. *Physical status: the use and interpretation of anthropometry*. Report of a WHO expert committee. WHO, Geneva, Switzerland, 1995.

## RECOMMENDATIONS

Based on the findings presented in this bulletin, we recommend that:

### 1. Feeding of infants and young children is improved by:

- promotion of exclusive breastfeeding for the first 4-6 months of life, including the feeding of colostrum (first milk produced by mother after delivery)
- increasing the quantity of food consumed by increasing the feeding frequency and choosing energy-dense (weaning) foods
- increasing the quality of the diet by improving micronutrient intake by including more fortified foods and foods of animal origin in the diet
- micronutrient supplementation, particularly with iron (in addition to vitamin A capsule distribution), to those groups among whom it is difficult to increase the intake of micronutrient-rich foods.

Because many families will not be able to afford commercially available, energy-dense, micronutrient fortified, weaning foods, such foods will have to be subsidized and be made available to specific target groups.

### 2. Food aid and micronutrient supplements are provided to pregnant and breastfeeding women in poor areas.

### 3. Monitoring of the health and nutrition situation in urban and rural areas of Indonesia is continued and expanded in order to:

- monitor the impact of the crisis on different subgroups of the population and in different areas
- identify necessary and appropriate interventions as well as areas and target groups that need them the most
- monitor impact of programs for limiting the consequences of the crisis on health, nutrition and education.

**For information and correspondence, contact:**

Dr. Dini Latief  
Directorate of Community Nutrition  
Ministry of Health  
Jl. H.R. Rasuna Said  
Blok X 5 Kav. 4-9  
Jakarta 12950  
Indonesia  
Tel (62-21) 520-3883  
Fax (62-21) 521-0176  
E-mail: latieffs@centrin.net.id

Dr. Soewarta Kosen  
National Institute for Health  
Research & Development  
Jl Percetakan Negara No. 23A  
Jakarta 10560  
Indonesia  
Tel (62-21) 424-3314 / 426-1088 ext. 192  
Fax (62-21) 421-1845  
E-mail: kosen@centrin.net.id

- 
- Dr. Martin W. Bloem  
Regional Director/Country Director  
E-mail: mwbloem@compuserve.com
  - Dr. Regina Moench Pfanner  
Regional Coordinator  
E-mail: remoench@cbn.net.id  
Helen Keller International  
Asia-Pacific Regional Office  
P.O. Box 4338  
Jakarta Pusat  
Indonesia  
Tel (62-21) 526-3872 / 252-6059  
Fax (62-21) 525-0529

*For general enquiries:*  
Federico Graciano  
E-mail: fgrac@cbn.net.id

- Dr. Saskia de Pee  
Nutrition Research Advisor  
E-mail: sdepee@compuserve.com
- Dr. Roy Tjiong  
Deputy Director  
E-mail: rtjiong@compuserve.com
- Mayang Sari  
Head of Nutrition  
E-mail: nutri1@dnet.net.id  
Helen Keller International  
Indonesia Country Office  
P.O. Box 4338  
Jakarta Pusat  
Indonesia  
Tel (62-21) 526-3872 / 252-6059  
Fax (62-21) 525-0529

---

© 1999 Helen Keller International

*Reprints or reproductions of portions or all of this document are encouraged provided due acknowledgement is given to the publication and publisher*

*Projects carried out by HKI-Indonesia in collaboration with the above organizations are funded by the United States Agency for International Development (USAID).*

*This publication was made possible through support by the Office of Population, Health and Nutrition, USAID/Indonesia Mission, under the terms of Award No. 497-A-00-99-00033-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the US Agency for International Development.*

